

IBM VisualAge C++ for OS/2

S25H-6956-00

Read Me First!

Version 3.0



IBM VisualAge C++ for OS/2

S25H-6956-00

Read Me First!

Version 3.0

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page v.

First Edition (May 1995)

This edition applies to Version 3.0 of IBM VisualAge C++ for OS/2 (30H1664, 30H1665, 30H1666) and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

Requests for publications and for technical information about IBM products should be made to your IBM Authorized Dealer or your IBM Marketing Representative. Publications are not stocked at the address given below.

A form for readers’ comments is provided at the back of this publication. If the form has been removed, address your comments to:

IBM Canada Ltd. Laboratory
Information Development
2G/345/1150/TOR
1150 Eglinton Avenue East
North York, Ontario, Canada. M3C 1H7

You can also send your comments by facsimile (attention: RCF Coordinator), or you can send your comments electronically to IBM. See “Communicating Your Comments to IBM” for a description of the methods. This page immediately precedes the Readers’ Comment Form at the back of this publication.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© Copyright International Business Machines Corporation 1993, 1995. All rights reserved.

Note to U.S. Government Users — Documentation related to restricted rights — Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

Contents

Notices	v
Trademarks and Service Marks	v
 Introducing IBM VisualAge C++ for OS/2	1
About This Booklet	2
Related Online Help	2
 Before You Begin	3
Hardware and Software Requirements	3
Quick Install Instructions	5
Installing in Unattended Mode	5
Using a Software Distribution Manager	6
If You Have a Previous Version Installed	6
Choosing Basic or Shared Installation	8
Which Procedure Should I Choose?	9
Installing on LAN-Connected Workstations	9
Installing to a Remote Drive	10
 Installing VisualAge C++	11
Changing Your CONFIG.SYS	17
Installing Using Response Files	19
Creating Diskettes from the CD-ROM	20
 Adding or Deleting Components	23
Deleting Components	26
Installing Additional Components	27
Adding or Deleting Components Using a Response File	29
Updating Your Desktop	31
 Now That You've Installed VisualAge C++	33
What Do You Have?	33
What Do You Do Next?	35
 Appendix A. If Something Goes Wrong	37
If You Get an Error Message	37
If the Component Requires Another Component	37
If You Press Stop	37
If the Install Program Fails	38
If the Second Phase of Installation Fails	39
If You Can't Delete an Object because It's in Use	39

If VisualAge C++ Doesn't Appear in the Installation Utility	39
If You've Tried Everything and It Still Doesn't Work	40
 Appendix B. Response Files, Options, and Return Codes	41
Response File Format and Parameters	41
Command-Line Options	43
Return Codes	45
 Appendix C. VisualAge C++ Online and Hardcopy Information	47
Online Information	47
At A Glance	49
Using VisualAge C++	49
How Do I... Selections	49
C/C++	50
Class Libraries	50
Visual Programming	50
OS/2, PM and Graphics	50
IPF, REXX and Editing	51
SOM and Workplace Shell	51
Multimedia	51
Hardcopy Information	51
BookManager Books	53
PostScript Files	53

Notices

Any reference to an IBM licensed program in this publication is not intended to state or imply that only IBM's licensed program may be used. Any functionally equivalent product, program or service that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, is the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, 500 Columbus Avenue, Thornwood, NY, 10594, USA.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independent created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact IBM Canada Ltd., Department 071, 1150 Eglinton Avenue E., North York, ONT Canada M3C 1H7. Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

Trademarks and Service Marks

The following terms are trademarks of the International Business Machines Corporation in the United States or other countries or both:

BookManager	Library Reader
C Set/2	OS/2
C Set ++	Presentation Manager
VisualAge C++	PROFS
IBM	WorkFrame
IBMLink	

Other company, product, or service names, which may be denoted by a double asterisk(**), may be trademarks or service marks of others.



Introducing IBM VisualAge C++ for OS/2

IBM VisualAge C++ for OS/2 is a comprehensive set of development tools for creating 32-bit OS/2 applications in C and C++. VisualAge C++ includes:

- WorkFrame, the customizable development environment that integrates the VisualAge C++ tools and lets you plug in other IBM and non-IBM tools.
- IBM's optimizing C/C++ compiler with support for templates, exception handling, 32/16-bit coexistence, and more.
- A new linker, featuring optimized linking for C and C++.
- Visual Builder, a graphical tool for creating applications quickly and easily.
- A programmable editor with syntax highlighting and other features.
- A class browser to display your program elements and relationships in a graphical format.
- A source-level Presentation Manager (PM) debugger, with special features to make debugging C++ and PM code easier.
- A performance analyzer for tuning your program's performance.
- The IBM Open Class Library:
 - Standard (I/O Stream and Complex mathematics)
 - Data Type and Exception (base, exception, string, date, and time classes)
 - Collection (generic container classes)
 - Database Access (for DB2/2 databases)
 - User Interface (classes that encapsulate the PM interface)
- Toolkit for OS/2 Warp Version 3.0, a set of tools for application development, including a resource compiler and make utility.
- Sample programs and information to describe and demonstrate VisualAge C++ features and coding techniques.

About This Booklet

This booklet describes the VisualAge C++ installation program, and gives you step-by-step instructions on how to install VisualAge C++ from diskette or CD-ROM, to a LAN or workstation or multiple workstations. It also suggests what you should do after you've completed the installation to familiarize yourself with VisualAge C++ and get started using it.

Anyone who wants to install VisualAge C++ can use this booklet, including users of a single workstation, users connected to a LAN, and network administrators.

Before using this booklet or VisualAge C++ itself, you should be familiar with the OS/2 operating system. If you are not, go through the OS/2 Tutorial, which you'll find in the Information folder on the Desktop.

Related Online Help

In addition to the information about the installation program included in this booklet, online help is provided throughout the program. To get help for a field or push button in a window, select the item and press F1. For help on a menu item, highlight the menu item (you may need to use the arrow keys), and then press F1.

You may also want to refer to Appendix C, "VisualAge C++ Online and Hardcopy Information" on page 47, which describes all the information that comes with VisualAge C++ and tells you where to find it.



Before You Begin

Before you begin to install VisualAge C++:

1. Make sure that you have all the VisualAge C++ materials. A checklist is provided in your VisualAge C++ package so you can verify that everything is included.
2. Make sure that your workstation meets the hardware and software requirements described in “Hardware and Software Requirements.”
3. If you have a previous version of VisualAge C++ installed, read “If You Have a Previous Version Installed” on page 6.
4. Decide which installation procedure you should use. The different procedures are described in “Choosing Basic or Shared Installation” on page 8.

Hardware and Software Requirements

Processor

32-bit processor (80386, 80486, Pentium**, or higher, or compatible processor).

If you have an 80386 processor, we recommend an 80387 math coprocessor to increase the speed of floating-point operations. If you have an 80486SX processor, we recommend an 80487 math coprocessor.

Operating System

OS/2 V2.11 or later, including the OS/2 Warp family. (VisualAge C++ Version J3.0 requires OS/2 Version J2.11 or later.)

Note: Code generated by VisualAge C++ runs on OS/2 V2.11 or later. However, if you use APIs that are new for OS/2 Warp, your generated code will run only on OS/2 Warp systems.

Other Software

To use Data Access Builder, you need IBM DB2/2 Version 1.2.

RAM

8M minimum for C development (12M recommended)
12M minimum for C++ development (16M recommended)
16M minimum for visual C++ development (24M recommended)

Disk Space

To install the entire product, you need approximately 170 MB of disk space. (You can reduce the space required by selectively installing components, or by doing a shared installation as described in “Choosing Basic or Shared Installation” on page 8.) You also need to set your swap path to a directory with at least 10 MB free for C applications or 30 MB for C++ applications. (For large trace files, Performance Analyzer may require more swap space.)

The tools and information are broken down into separate *components*. You can choose which components you want to install. The disk space required for each component is approximately:

Component	Space Required (MB)
Compiler and runtime libraries	13.5
WorkFrame	20.5
PM Debugger	14.5
Class Browser	14.6
Performance Analyzer	12.5
Visual Builder	18.5
Data Access Builder	12.6
Editor	15.5
IBM Open Class Libraries	15.2
Standard Class Libraries	0.3
Documentation	25
Samples	16
Warp Toolkit development tools	8.1
Warp Toolkit information	21
Warp Toolkit headers and libraries	15.1
Warp Toolkit sample programs	24
Warp Toolkit multimedia bitmaps	2

Note that you can install the components for the compiler and tools to one drive or directory, and components for samples and information to another.

For a shared installation (where only necessary files are copied to your workstation), you need approximately 30 to 50MB of disk space. See “Choosing Basic or Shared Installation” on page 8 for more information about shared installation.

For the latest information about space requirements, use the **Disk Space** button in the Install - Directories window of the install program.

Quick Install Instructions

If you are familiar with installation procedures, know where your installation program is (diskette, CD-ROM, or a LAN directory), and have met all the requirements listed above, follow the steps below to install VisualAge C++.

If you run into difficulty, refer to the detailed instructions in “Installing VisualAge C++” on page 11. If you want to run the installation procedure unattended, see “Installing in Unattended Mode.”

Important: If you have a previous version of C Set ++ installed, read “If You Have a Previous Version Installed” on page 6 before you install VisualAge C++. If you are installing VisualAge C++ on a LAN, read “Installing on LAN-Connected Workstations” on page 9.

To install VisualAge C++:

1. From an OS/2 session, locate and change to the directory for the VisualAge C++ installation program.
2. For a basic install, type `install` and press Enter. For a shared install, type `shrdinst` and press Enter. (See “Choosing Basic or Shared Installation” on page 8 for an explanation of basic and shared installation.)
3. Select the buttons to continue to the window with the list of components to install.
4. Select the components you want to install, and select the **Install** button.
5. When the install program has finished, shut down your system and restart it.

Note: If you did not tell the installation program to update your CONFIG.SYS file, you must make the changes yourself before you reboot. See “Changing Your CONFIG.SYS” on page 17 for a description of the changes.

Installing in Unattended Mode

If you are doing a basic installation from CD-ROM or from a LAN server, you can also run the installation procedure unattended, using response files to specify what to install and where to install it. This is particularly useful if you are installing from a LAN server to multiple clients.

Note: You cannot run an unattended installation from diskettes because you have to insert the diskettes. Shared installation using response files is not currently supported; however, shared installation is very rapid because few files are installed.

To install unattended:

1. Copy the sample response file, UNATTEND.RSP, to your hard drive from the IBMCPP\EXTRAS directory on the VisualAge C++ CD-ROM.
2. Modify the entries as you require. Make sure that:
 - FILE specifies the directory where you want to install the compiler and tools components.
 - WORK specifies the directory where you want to install the samples and online information components.
 - COMP keywords specify the components you want to install.

3. Install with the command:

```
install /A:I /X /R:d:UNATTEND.RSP /C:VACPP.ICF /P:"IBM VisualAge C++ for OS/2" /O:DRIVE
```

where *d* is the drive you put UNATTEND.RSP.

4. When the install program has finished, shut down your system and restart it.

For more details about installing with a response file, see “Installing Using Response Files” on page 19. For details on response file parameters and command-line options, see Appendix B, “Response Files, Options, and Return Codes” on page 41.

Using a Software Distribution Manager

You can also install VisualAge C++ unattended over a LAN using a software distribution manager (SDM). Tailor the response file according to your needs and use it with your SDM. Make sure you specify the correct options, as described above.

Your SDM must also check the value returned by the install program and perform the appropriate action. Return codes and the actions required for each are described in Appendix B, “Response Files, Options, and Return Codes” on page 41, along with all response file parameters and command-line options.

If You Have a Previous Version Installed

You cannot install VisualAge C++ over an existing C Set ++ or VisualAge C++ directory; you must install it to a new directory. (If you have already installed this version of VisualAge C++ but want to reinstall components, see “Adding or Deleting Components” on page 23.)

If you have an earlier version of C Set ++ or a beta version of VisualAge C++ installed, you must either remove it or maintain it separately from VisualAge C++. (If you have a beta version, you should delete it. Note that beta versions were referred to as C Set ++.)

Note: If you want to migrate existing C Set ++ projects to VisualAge C++, you must do this **before** you remove C Set ++ and WorkFrame V2.1.

To remove a version of C Set ++ or VisualAge C++ Beta 1:

1. Close down any C Set ++ or VisualAge C++ beta files that you have open or running.
2. Deregister WorkFrame classes by running the DEREG21.CMD file (located in the root directory of the VisualAge C++ Diskette 1 or CD-ROM).
3. Delete all C Set ++ or VisualAge C++ beta files, directories, and Desktop folders. (Be sure to save your source files.)
4. Remove the C Set ++ or VisualAge C++ directories or file names (including those for the WorkFrame) from the following statements in your CONFIG.SYS file:

```
PATH
DPATH
LIBPATH
HELP
INCLUDE
LIB
BOOKSHELF
HELPNDX
```

Also remove the device driver statement for DDE4XTRA.SYS.

5. Delete all C Set ++ or VisualAge C++ desktop folders.
6. Shut down your system and restart it.

To remove VisualAge C++ Beta 2:

1. Open the **Tools** folder located in the desktop folder for Beta 2.
2. Double-click on the Installation Utility icon.
3. From the **Actions** menu, select **Delete**.
4. Shut down your system and restart it.

You can then install VisualAge C++.

If you want to maintain the earlier version of C Set ++, make sure that, in your CONFIG.SYS file, the directories for VisualAge C++ come **before** those of C Set ++ in the statements listed above. Also, make sure you don't mix components or generated files between the two versions, because they may not be completely compatible.

Choosing Basic or Shared Installation

There are two main ways you can install VisualAge C++: basic or shared. The install command is different for each, but the steps you follow are the same.

1. Basic installation

This procedure installs all files for the components you select to your hard drive. The drawback to a basic installation is that you need a large amount of disk space.

If you are installing from diskette, this is the only installation procedure you can use. The command for basic installation is `install`.

2. Shared installation

For the components you select, this procedure installs only those files that must be local to your hard drive. The rest of the files remain on the CD-ROM or on a LAN server, and you access them from the CD-ROM or server. A shared installation requires significantly less disk space than a basic installation. The command for shared installation is `shrdinst`.

If You Run Shared Installation from a CD-ROM: There are a few drawbacks to a shared installation from the CD-ROM:

- You cannot apply corrective service (CSDs) to the CD-ROM. If you want to apply fixes to VisualAge C++ components, you must use basic installation.
- You cannot run all the sample programs from the CD-ROM. Many of the VisualAge C++ samples generate files, and because the CD-ROM is read-only, you won't be able to run them from the CD-ROM. You can copy the sample code to your hard drive, or you can specify options for each sample to create all output files (including temporary files) on your hard drive.
- VisualAge C++ performance from CD-ROM may be slower than from your hard drive. The speed of accessing and transferring information is usually considerably slower from CD-ROM than from your hard drive.

Which Procedure Should I Choose?

Use basic installation if:

- You are installing from diskettes.
- You want to maintain files locally on your hard drive.
- You are concerned about performance for shared installation from CD-ROM.
- You have enough room on your hard drive for the components you want.

Use shared installation if:

- You want to minimize the disk space used on your hard drive.
- You want to maintain common files on a LAN server for the team to use.

Installing on LAN-Connected Workstations

If your workstations are connected to a LAN, you can set up the VisualAge C++ installation files on a LAN server and then install from the server to the individual client workstations. Installing from the server is faster than installing from diskettes or CD-ROM, and several client workstations can install at the same time.

Depending on how the files are placed on the server, clients can install all selected files locally (a basic installation), or only necessary files, with the remainder left to reside on the server (a shared installation). Note that most of the problems associated with shared installation from CD-ROM do not affect shared installation from a LAN. In addition, with a shared installation, you can ensure that all clients are using the same versions of the common files.

Important: When you install VisualAge C++ across multiple workstations, make sure you observe the license agreement as described in the *License Information* booklet.

If you are a LAN user:

You need to know what kind of installation is available from the server (ask your LAN administrator). If both basic and shared are available, decide which you prefer. Then follow the same steps as you would for installing to a single workstation. You can run the install program either attended or using a response file.

If you are a LAN administrator:

Follow the steps below to put the appropriate installation files on the server. The setup procedure varies slightly depending on whether you are using diskettes or CD-ROM to set up the server. If you are using diskettes, clients can only do a basic installation. If you are using CD-ROM, clients can choose a basic or shared installation. (Shared installation requires the complete install image, which is only available from the CD-ROM.)

Neither of these procedures require changes to the server's CONFIG.SYS file.

If you are using diskettes:

1. Create a directory on the server that LAN users can access (for example, VACPP).
2. Change to the server directory.
3. Use XCOPY to copy the files from each diskette to the server. The syntax for XCOPY is:

```
xcopy d:\* VACPP /s
```

where *d* is the diskette drive.

4. Notify LAN users of where the installation files are located, and that they must do a basic installation.

If you are using CD-ROM:

1. Create a directory on the server that LAN users can access (for example, VACPP).
2. Change to the LAN directory.
3. Use XCOPY to copy all the files from the CD-ROM to the server. The syntax for XCOPY is:

```
xcopy d:\* VACPP /s
```

where *d* is the CD-ROM drive.

4. Notify LAN users of where the installation files are located.

You can also install VisualAge C++ directly on the LAN server following the instructions as you would for a single workstation. This does not interfere with the images created by the procedures described above.

Installing to a Remote Drive

You can install VisualAge C++ to a remote drive on the LAN. However, you need approximately 10MB of free disk space on your local boot drive for certain files that must reside locally.



Installing VisualAge C++

This section gives you step-by-step instructions for each of the VisualAge C++ installation procedures. Make sure you have read “Before You Begin” on page 3.

If you get error messages during the installation procedure, select the **Help** push button in the message window for help on what to do. If you have problems installing, see Appendix A, “If Something Goes Wrong” on page 37.

You can install from diskettes, CD-ROM, or from a LAN server. (Check with your LAN administrator to find out if you can install from the server, and where the images are located).

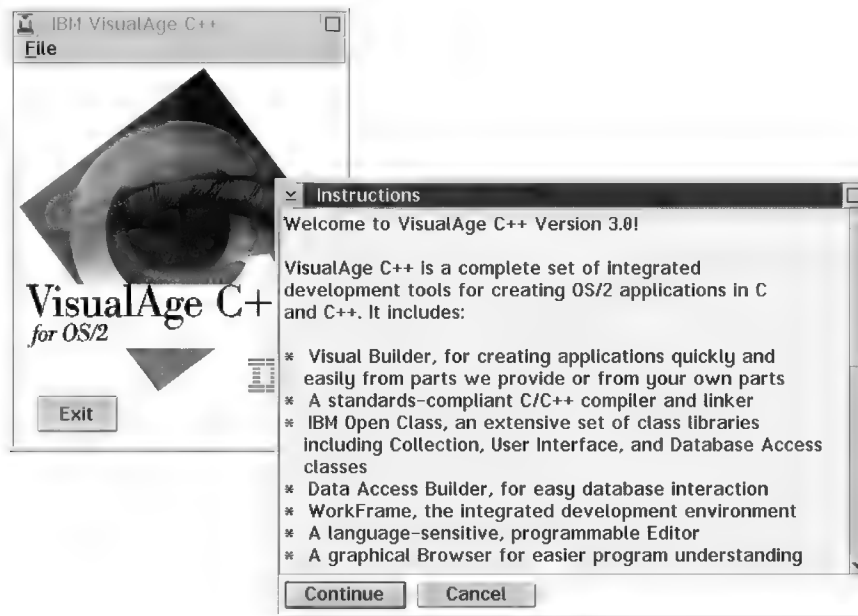
Note: If you have the CD-ROM version, but need to install VisualAge C++ on a workstation without a CD-ROM drive, see “Creating Diskettes from the CD-ROM” on page 20.

1. Insert the VisualAge C++ CD-ROM or Diskette 1, or access the LAN where the VisualAge C++ image resides.
2. From the command line, change to the directory where the install program is located. (For the CD-ROM and diskette, it is the root directory.)
3. Read the README file located in the same directory as the install program.

This file contains the latest information about VisualAge C++ changes or restrictions, including any that affect installation. If the README file differs from this booklet, the README file is correct.

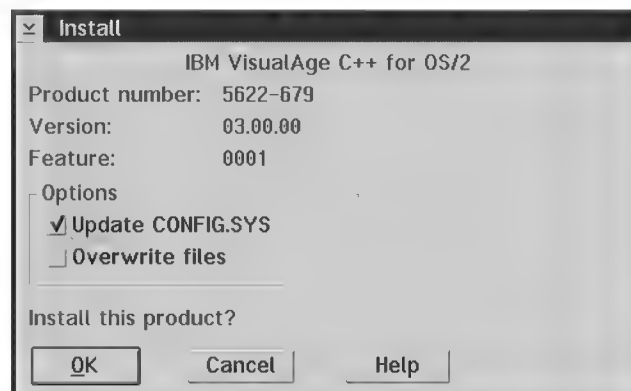
4. For a basic installation, enter `install` from the command line. For a shared installation, enter `shrdinst` from the command line. (If you're not sure which you should choose, read “Choosing Basic or Shared Installation” on page 8.)

The main VisualAge C++ installation window and the Instructions window appear.



5. Select **Continue** in the Instructions window.

The Install window appears, displaying the product name and product and version numbers.



If also provides two checkboxes:

Update CONFIG.SYS

This box directs the install program to automatically update your CONFIG.SYS file. (It also backs up CONFIG.SYS before making any changes. The backup name is CONFIG.001, or CONFIG.002 if that file exists, and so on.) This box is checked by default; if you do not want the install program to update your CONFIG.SYS, remove the checkmark by selecting the box.

Note: We recommend you leave this box checked to update CONFIG.SYS automatically. If you choose not to have the install program update your CONFIG.SYS, you must make the changes yourself before you run VisualAge C++ and before you can complete the installation program for WorkFrame. A CONFIG.ADD file is created on your boot drive to help you. See “Changing Your CONFIG.SYS” on page 17 for information on what you need to change.

Overwrite files

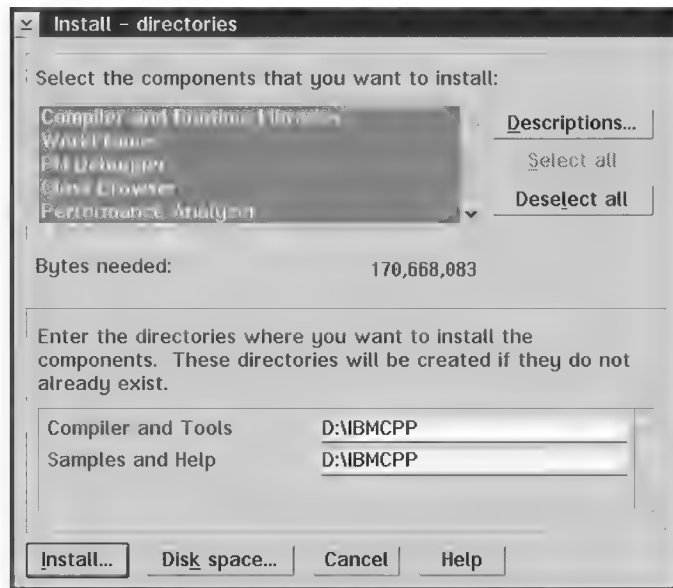
Put a check in this box if you want to skip the prompt for confirmation when the install program overwrites files in your target directory with the same name as the files being installed.

Note: If you are installing over a previous version, make sure you have read “If You Have a Previous Version Installed” on page 6. Remember that you should not install VisualAge C++ over an existing C Set ++ or beta VisualAge C++ installation.

6. When you've chosen the options you want, select **OK** to continue.

If you chose not to have the install program update CONFIG.SYS, a message box reminds you to update the file yourself when the installation is complete. Select **Yes** to continue.

The Install - directories window appears. From this window, you choose the components to install and where to install them.



7. Choose the components you want to install from the list.

All components are selected by default. Click on a component to deselect the ones you don't want, or use the **Deselect all** button to deselect all the components. You can then select the components you do want. To find out more about a component, select it and then select **Descriptions**.

You don't have to install all the components at once; you can run the install program again at a later time (described in "Adding or Deleting Components" on page 23). You must select at least one component to continue with the install program.

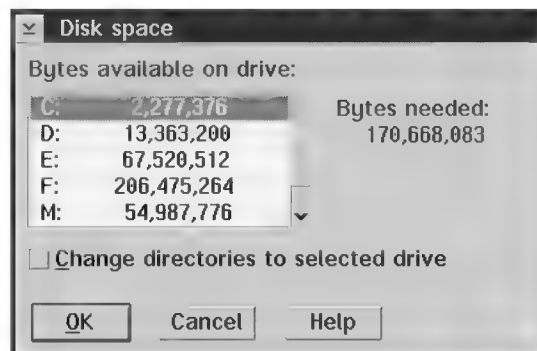
Note: Some components require that you also install other components for them to work correctly. If you select a component that has such a prerequisite, a message will prompt you to also select the required component.

As you choose the components, the **Bytes Needed** field shows you how much disk space is required to install them.

8. Specify the directory or directories where you want to install the components.

Default values are provided for you; they install everything to a single directory (IBMCP) on your boot drive. You can specify 2 different directories, one for the compiler and tools, the other for samples and online information. Make sure you give the drive as well as the directory name. If you name a directory that doesn't exist, the install program creates it for you.

To see how much disk space is available on your hard drive, select **Disk Space**. (You must have at least one component selected before you can select this button.) The Disk space window appears and shows you the space available on all drives, along with the bytes needed for the components you have chosen.



The install program does not prevent you from installing to a drive that does not have enough space. If you will be overwriting files, you may have enough space on a drive even though the installation program shows you do not. However, if there is not enough space, the install program will fail. See Appendix A, "If Something Goes Wrong" on page 37 for what to do if the program fails.

To set your installation directories to another drive, select the drive, check the **Change directories to selected drive** field, and select **OK**. The install program updates all of the directory fields to that drive, but does not change the directory names. To return to the main install window without making any changes, select **Cancel**.

9. When you've chosen the components to install and specified the target directories, select **Install** to start installing VisualAge C++.

The install program begins copying files to your hard drive. The Install progress window shows you the status of the installation. If you are installing from diskettes, the install program also prompts you for the correct diskettes.

If for any reason you want to stop the install program, click on **Stop** in the Install Progress window. Once you have selected this button, you cannot resume the program; you must end it completely and start from the beginning. A window appears asking you to confirm you want to stop the installation; select **Yes, stop** to close the window and end the install program. The install program also asks if you want to undo everything that it has done up until then. We recommend you select **Yes** to undo everything. If you select **No**, the install program leaves all the files it has already installed on your hard drive. You will then need to erase these files before you restart the install program, or select **Overwrite files** in the Install window.

10. A message window tells you when the installation is complete. Select **OK** to remove the message window and return to the main VisualAge C++ install window.
11. In the main install window, select the **Exit** button, or **Exit** from the **File** menu to end the install program.

Note: If you chose not to have the installation program update your CONFIG.SYS, make the changes to it now **before** you reboot (see “Changing Your CONFIG.SYS” on page 17).

12. Shut down and restart your system to make the changes to your CONFIG.SYS file take effect.
13. If you chose to install the WorkFrame component, the installation program requires a second phase, which is invoked from your **Startup** folder when you restart. During the second phase, the install program registers WorkFrame classes, updates any sample projects you installed, and sets up Project Smarts.

An OS/2 window with the title **WorkFrame V3 Phase 2 Install** appears after you have restarted. Messages appear in the window to inform you of the install program's actions. When the installation is complete, the window disappears.

If you want to verify that the installation completed successfully, look for CPPINST.LOG in your main VisualAge C++ directory. The second phase of the install program creates this file and timestamps the entries in it.

You have now successfully installed VisualAge C++, and are ready to go! See “Now That You've Installed VisualAge C++” on page 33 for what to do next.

Changing Your CONFIG.SYS

If you chose not to have the install program update your CONFIG.SYS file, you must make changes to the statements it contains before you can use VisualAge C++. If you are installing WorkFrame, you must make these changes before the second phase of the installation can begin. To make it easier for you, the install program creates a file called CONFIG.ADD, which contains the changes you need to make. You can find CONFIG.ADD in the target install directory. (The CSETENV.CMD file in the BIN directory also contains the environment settings for VisualAge C++.)

Assuming you did a basic install, installing the compiler and tools components in D:\IBMCPP and the samples and information components in E:\IBMCPP, CONFIG.ADD would contain the following statements:

```
LIBPATH=D:\IBMCPP\DLL;E:\IBMCPP\SAMPLES\TOOLKIT\DLL
SET PATH=D:\IBMCPP\BIN;E:\IBMCPP\HELP;D:\IBMCPP\SMARTS\SCRIPTS
SET DPATH=E:\IBMCPP\HELP;D:\IBMCPP;D:\IBMCPP\LOCALE;D:\IBMCPP\MACROS;D:\IBMCPP\BND
SET HELP=E:\IBMCPP\HELP;E:\IBMCPP\SAMPLES\TOOLKIT\HELP
SET IPF_KEYS=SHOWNAV
SET BOOKSHELF=E:\IBMCPP\HELP
SET SOMIR=D:\IBMCPP\ETC\SOM.IR
SET INCLUDE=D:\IBMCPP\INCLUDE;D:\IBMCPP\INCLUDE\OS2;D:\IBMCPP\INC;D:\IBMCPP\INCLUDE\SOM
SET LIB=D:\IBMCPP\LIB;D:\IBMCPP\DLL
SET VACPP_SHARED=FALSE
SET CPPHELP_INI=C:\OS2\SYSTEM
SET CPPLOCAL=D:\IBMCPP
SET CPPMAIN=D:\IBMCPP
SET LOCPATH=D:\IBMCPP\LOCALE
SET IWF.DEFAULT_PRJ=CPPDFTPRJ
SET IWF.SOLUTION_LANG_SUPPORT=CPPIBS30;ENG
SET THREADS=512
SET SMINCLUDE=D:\IBMCPP\INCLUDE\OS2;D:\IBMCPP\INCLUDE;D:\IBMCPP\INCLUDE\SOM
DEVICE=D:\IBMCPP\SYS\CPPOPA3.SYS
SET VBPATH=.;D:\IBMCPP\DDE4VB
SET TMPDIR=D:\IBMCPP\TMP
SET LXEVFREF=EVFELREF.INF+LPXCREF.INF
SET LXEVFHD=EVFELHDI.INF+LPXHD.I.INF
SET LPATH=D:\IBMCPP\MACROS
SET CODELPATH=D:\IBMCPP\CODE\MACROS;D:\IBMCPP\MACROS
SET CLREF=CPPCLRF.INF+CPPCLR.INF+CPPDAT.INF+CPPDACL.INF+CPPAPP.INF+CPPWIN.INF+
  CPPCTL.INF+CPPADV.INF+CPP2DG.INF+CPPDDE.INF+CPPDM.INF+CPPMM.INF+CPPCLRB.INF
SET IPFC=D:\IBMCPP\IPFC
SET SOMRUNTIME=D:\IBMCPP\DLL
SET CPREF=CP1.INF+CP2.INF+CP3.INF
SET GPIREF=GPI1.INF+GPI2.INF+GPI3.INF
SET PMREF=PM1.INF+PM2.INF+PM3.INF+PM4.INF+PM5.INF
SET WPSREF=WPS1.INF+WPS2.INF+WPS3.INF
SET MMREF=MMREF1.INF+MMREF2.INF+MMREF3.INF
```

```

SET SMADDSTAR=1
SET SMEMIT=h;ih;c
SET SOMBASE=D:\IBMCPP
SET SMTMP=D:\IBMCPP\TMP
SET SMCLASSES=WPTYPES.IDL
SET TMP=D:\IBMCPP\TMP
SET HELPNDX=EPMKWHLP.NDX+CPP.NDX+CPPBRS.NDX

```

Notes:

1. For the CLREF, CPREF, GPIREF, PMREF, WPSREF, MMREF, and HELPNDX variables, separate each entry with a + (plus) sign instead of a semicolon, and do **not** end the statement with a semicolon. Do not put any spaces in the statement. (Spaces shown above were added for readability.)
2. For a shared installation, VACPP_SHARED is set to the CD-ROM or LAN drive where the shared files are located.
3. VisualAge C++ uses the directory specified by the TMP environment variable to store temporary files. If you already set TMP in your CONFIG.SYS file to a different directory, you don't have to change it. Just remove the TMP statement that you don't want to use.

If you prefer, you can set these environment variables in a command file, but you must then invoke that command file for every OS/2 session where you invoke VisualAge C++ tools. You must also set them for all VisualAge C++ projects. We recommend you set all variables in CONFIG.SYS.

At the very least, you **must** add or modify the following statements in CONFIG.SYS:

```

LIBPATH=D:\IBMCPP\DLL;D:\IBMCPP\SAMPLES\TOOLKIT\DLL
SET PATH=D:\IBMCPP\SMARTS\SCRIPTS
SET SOMIR=D:\IBMCPP\ETC\SOM.IR
SET VACPP_SHARED=FALSE
SET CPPHELP_INI=C:\OS2\SYSTEM
SET IWF.DEFAULT_PRJ=CPPDFTPRJ
SET IWF.SOLUTION_LANG_SUPPORT=CPPIBS30;ENG
SET THREADS=512
DEVICE=D:\IBMCPP\SYS\CPPOPA3.SYS
SET SOMRUNTIME=D:\IBMCPP\DLL
SET SMADDSTAR=1
SET SMEMIT=h;ih;c
SET SOMBASE=D:\IBMCPP
SET SMTMP=D:\IBMCPP\TMP
SET SMCLASSES=WPTYPES.IDL

```

When you have finished changing CONFIG.SYS, restart your system to make the changes take effect.

Installing Using Response Files

If you are doing a basic installation from a CD-ROM or LAN server, you can run the install program unattended, using a response file to specify what to install and where.

Note: You cannot run an unattended installation from diskettes because you have to insert the diskettes. Shared installation using response files is not currently supported; however, shared installation is very rapid because few files are installed.

To install using a response file:

1. Create a response file, or tailor the sample response file, UNATTEND.RSP, provided in the IBMCPP\EXTRAS directory of the CD-ROM. You can copy UNATTEND.RSP to your hard drive and change the appropriate responses.

Make sure that:

- FILE specifies the directory where you want to install the compiler and tools components.
- WORK specifies the directory where you want to install the samples and online information components.
- COMP keywords specify the components you want to install.

For a list of all the parameters you can change, see Appendix B, “Response Files, Options, and Return Codes” on page 41.

2. From an OS/2 command line, change to the CD-ROM or LAN directory where the install program resides.
3. Invoke the install program with the command:

```
install /A:I /X /R:d:UNATTEND.RSP /C:VACPP.ICF /P:"IBM VisualAge C++ for OS/2" /O:DRIVE
```

Note: If you want to log any error messages that are generated, specify the /L1:*errorlog* option, where *errorlog* is the path and file name to use for the error log. This is usually a good idea because messages are not displayed during an unattended install; if you don't log them, you will have no record of what errors occurred.

For a description of these and other command-line options, see Appendix B, “Response Files, Options, and Return Codes” on page 41.

4. You can then leave the install program unattended. When it is complete, the OS/2 command prompt appears in the OS/2 session where you ran the install command.
5. If you chose not to have the installation program update your CONFIG.SYS, make the changes to it now **before** you reboot. (See “Changing Your CONFIG.SYS” on page 17 for details on the changes to make).
6. Shut down and restart your system to make the changes to your CONFIG.SYS file take effect.

7. If you chose to install the WorkFrame component, the installation program requires a second phase, which is invoked from your **Startup** folder when you restart. During the second phase, the install program registers WorkFrame classes, updates any sample projects you installed, and sets up Project Smarts.

An OS/2 window with the title **WorkFrame V3 Phase 2 Install** appears after you have restarted. Messages appear in the window to inform you of the install program's actions. When the installation is complete, the window disappears.

If you want to verify that the installation completed successfully, look for CPPINST.LOG in your main VisualAge C++ directory. The second phase of the install program creates this file and timestamps the entries in it.

You have now successfully installed VisualAge C++, and are ready to go! See “Now That You've Installed VisualAge C++” on page 33 for what to do next.

Creating Diskettes from the CD-ROM

The VisualAge C++ CD-ROM also contains the VisualAge C++ diskette images. The images are for 3.5 inch 1.44 MB format diskettes, and are located in the IBMCPP\IMAGES directory on the CD-ROM. You can create VisualAge C++ diskettes from these images to use as a backup to the CD-ROM, or to install VisualAge C++ on a machine without a CD-ROM drive. You can create the diskettes at any time before or after installing VisualAge C++.

Important: If you create diskettes to install on other workstations, make sure you observe the license agreement as described in the *License Information* booklet.

Each image file is equivalent to one diskette, so you will need as many diskettes as there are image files. To transfer the images to your diskettes:

1. Access the CD-ROM drive (assume it is drive e:) and change to the IMAGES directory.
2. Insert a 3.5 inch diskette in your diskette drive (assume it is drive a:).

Note: You can use 5.25 inch diskettes, but you must specify the /C option on the LOADDSKF command in the next step.

3. Copy the first diskette image (DISK1.IMG,) to the diskette using the LOADDSKF utility, also located in the IMAGES directory of the CD-ROM:

```
LOADDSKF e:\IMAGES\DISK1.IMG a: /f
```

LOADDSKF runs on both DOS and OS/2, and the general syntax is:

```
LOADDSKF [d:\path\]image.dsk a: [options]
```

where:

d:\path Is the path of the diskette image file (the IMAGES directory of the CD-ROM).

image.dsk Is the name of the diskette image file.

a: Is the diskette drive where the target diskette is.

options Are any of the following:

/F Format the target diskette to match the diskette image format.

/Y Skip the prompt for user input (y/n) when overwriting the diskette.

/Y /Q Skip the warning message when overwriting the diskette.

/S Do not beep when diskette has been created (silent mode).

/C Create 5.25 inch diskettes from the 3.5 inch images.

We recommend you use the /F option to ensure your diskettes are formatted correctly; you may want to use the other options for convenience.

4. Remove the diskette and label it Diskette 1.
5. Repeat steps 2 to 4 for each of the diskette images. Make sure you label each diskette with the same number as the disk image file you copied to it.

To install from the diskettes you created, follow the instructions in “Installing VisualAge C++” on page 11.



Adding or Deleting Components

Once VisualAge C++ has been installed, you can go back to the install program to install additional components or to delete components. If you need to reinstall a component, you can delete it and then add it again.

You can use one of three ways to add or delete components:

1. Run the original install program interactively.
2. Use the Installation Utility program from the VisualAge C++ **Tools** folder.
3. Run the original install program with a response file.

The steps for methods 1 and 2 are very similar, other than the initial interface. The steps for using a response file are described in “Adding or Deleting Components Using a Response File” on page 29.

If you are adding components, make sure you have access to the diskettes, CD-ROM, or LAN directory where the VisualAge C++ installation files reside.

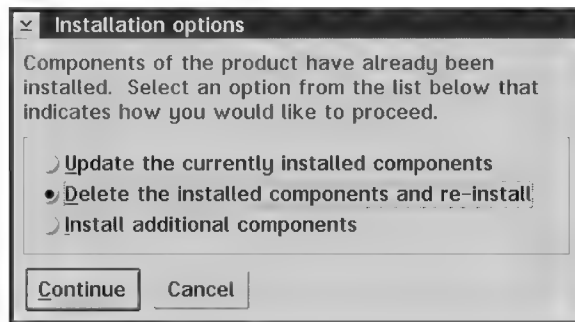
To add or delete components with the original install program:

1. Insert the VisualAge C++ CD-ROM or Diskette 1, or access the LAN where the VisualAge C++ image resides.
2. From the command line, change to the directory where the install program is located. (For the CD-ROM and diskette, it is the root directory; for the LAN directory name, ask your LAN administrator.)
3. Type the same command that you used to install the product: `install` for a basic installation, `shrdinst` for a shared installation.

The main VisualAge C++ installation window and the Instructions window appear.

4. Select **Continue** in the Instructions window.

The Installation options window appears showing three options.



The options are:

- **Update the currently installed components**

Do not use this option. It is provided to support corrective service (CSDs) for VisualAge C++ fixes. To reinstall a component, delete it first, then reinstall.

- **Delete the installed components and re-install**

Choose this option to delete the installed components, including their Desktop objects and entries in any .INI files. You can then reinstall them if you want. The steps for deleting components continue in “Deleting Components” on page 26.

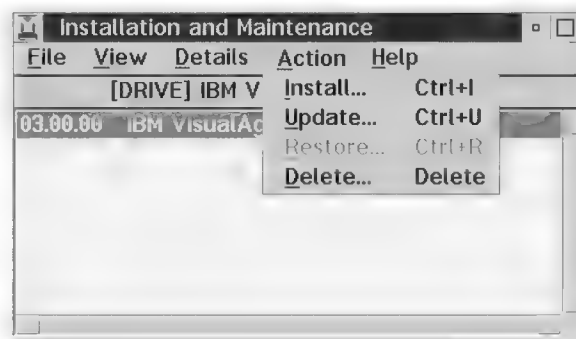
- **Install additional components**

Choose this option to install components that aren't already installed. The steps for adding components continue in “Installing Additional Components” on page 27.

To add or delete components using the Installation Utility:

1. Open the **Tools** folder inside the **VisualAge C++** folder, or from the command line, go to the main VisualAge C++ directory.
2. Double-click on the Installation Utility icon, or enter `install` from the command line.

The Installation Utility window appears.



3. From the **Actions** menu, select:

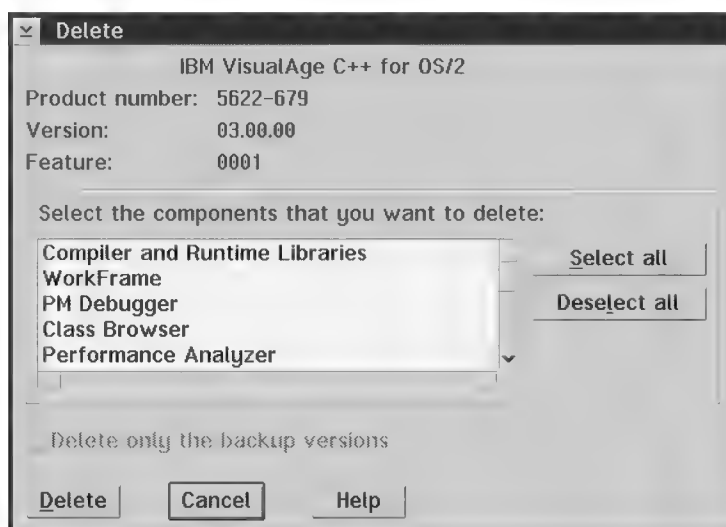
- **Delete** to delete installed components, including their Desktop objects and any entries in .INI files. You can then reinstall them if you want. The steps for deleting components continue in “Deleting Components” on page 26.
- **Install** to install additional components. The steps for adding components continue in “Installing Additional Components” on page 27.

Note: Do not choose **Update**. This option is provided to corrective service diskettes (CSDs) that contain product fixes. The **Restore** option restores a backup version of a component, which you can choose to create when you update the component with a CSD.

Deleting Components

When you choose **Delete the installed components and re-install** from the Installation options window, or **Delete** from the **Actions** menu of the Installation Utility:

1. The Delete window displays a list of the components you have installed.



2. Select the components you want to delete.

You can use the **Select all** button to choose all the components, or **Deselect all** to deselect them and start again.

If you previously applied fixes to components and created backup versions, you can delete just the backup versions by selecting the components and checking the **Delete backup versions only** box.

3. When you have chosen the components to delete, select **Delete**.

The Delete - progress window shows the status of the deletion process. A message window tells you when all of the component files and related information have been deleted.

4. Select **OK** to remove the message window.

Note: You may get a message indicating that some files could not be deleted because they were in use. Select **OK** to continue. When you shut down and restart your system, these files will be deleted.

If you used the Installation Utility to delete the files, it reappears. If you used the install program (install), the Installation options window reappears, as shown on page 24.

5. To reinstall components, select **Install additional components** from the Installation options window, or select **Install** from the Installation Utility's **Actions** menu.

To end the install program, select the **Exit** button in the main install window, or **Exit** from the **File** menu. To end the Installation Utility program, select **Exit** from the **File** menu.

Installing Additional Components

When you choose **Install additional components** from the Installation options window, or **Install** from the **Actions** menu of the Installation Utility:

1. The Install window appears, as it did in the initial installation procedure, with two checkboxes:

Update CONFIG.SYS

This box directs the install program to automatically update your CONFIG.SYS file. (It also backs up CONFIG.SYS before making any changes.) This box is checked by default; if you do not want the install program to update your CONFIG.SYS, remove the checkmark by selecting the box.

Note: If you choose not to have the install program update your CONFIG.SYS, you must make the changes yourself before you run VisualAge C++. A CONFIG.ADD file is created on your boot drive to help you. See “Changing Your CONFIG.SYS” on page 17 for information on what you need to change.

Overwrite files

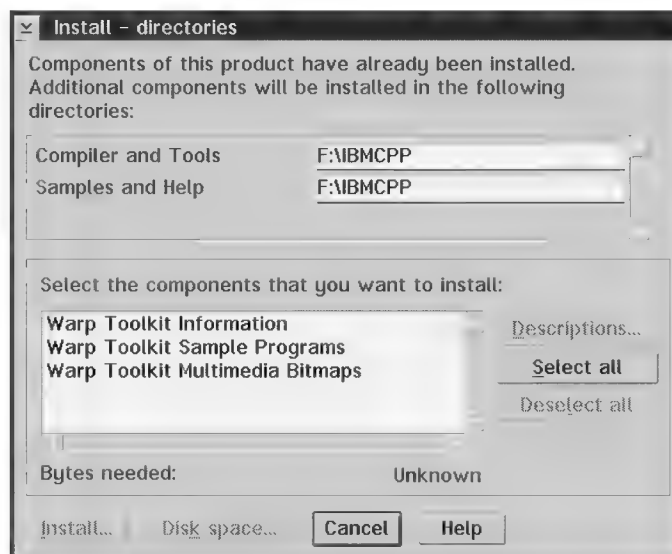
Put a check in this box if you want to skip the prompt for confirmation when the install program overwrites files in your target directory with the same name as the files being installed.

Note: Remember that the installation program does not delete any obsolete files from earlier versions.

2. When you've chosen the options you want, select **OK** to continue.

If you chose not to have the install program update CONFIG.SYS, a message box reminds you to update the file yourself. Select **Yes** to continue with the installation.

The Install - directories window appears, looking slightly different than it did in the initial installation.



Only components that you have not yet installed are displayed.

3. Select the components you want to install from the list.

As you choose the components, the **Bytes Needed** field shows you how much disk space is required to install them. To get the description of a component, select the component and select **Descriptions**. To see how much disk space is available on your hard drive, select **Disk Space**. (You must have at least one component selected before you can select this button.)

Any components that you choose are installed to the directories that were created during the initial installation. If you want to install to different directories, you must delete the original components and reinstall them to a different directory.

4. When you've chosen the components to install and specified the target directories, select **Install** to start installing VisualAge C++.

The Install progress window shows you the status of the installation. If you are installing from diskettes, the install program also prompts you for the correct diskettes.

5. A message window tells you when the installation is complete. Select **OK** to remove the message window and return to the Installation Utility window or the main VisualAge C++ install window where you started from.
6. To end the Installation Utility program, select **Exit** from the **File** menu. To end the install program, select the **Exit** button, or **Exit** from the **File** menu.

Note: If you chose not to have the installation program update your CONFIG.SYS, make the changes to it now **before** you reboot (see “Changing Your CONFIG.SYS” on page 17).

7. Shut down and restart your system to make the changes to your CONFIG.SYS file take effect.
8. If you chose to install the WorkFrame component, the install program requires a second phase, which is invoked from your **Startup** folder when you restart. During the second phase, the install program registers WorkFrame classes, updates any sample projects you installed, and sets up Project Smarts.

An OS/2 window with the title **WorkFrame V3 Phase 2 Install** appears after you have restarted. Messages appear in the window to inform you of the install program's actions. When the installation is complete, the window disappears.

If you want to verify that the installation completed successfully, look for CPPINST.LOG in your main VisualAge C++ directory. The second phase of the install program creates this file and timestamps the entries in it.

Adding or Deleting Components Using a Response File

To add or delete components using a response file:

1. Modify the appropriate parameters in your response file.

If you are deleting components, make sure that:

- COMP keywords specify the components to delete.
- DELETEBACKUP specifies whether you want to delete backup files,

If you are adding components, make sure that:

- FILE specifies the directory where you want to install the compiler and tools components.
- WORK specifies the directory where you want to install the samples and online information components.
- COMP keywords specify the components you want to install.

2. Change to the CD-ROM or LAN directory where the VisualAge C++ install program resides.

3. To delete components, enter:

```
install /A:D /X /R:d:UNATTEND.RSP /C:VACPP.ICF /P:"IBM VisualAge C++ for OS/2" /O:DRIVE
```

where *d:UNATTEND.RSP* is your response file.

To install additional components, enter:

```
install /A:I /X /R:d:UNATTEND.RSP /C:VACPP.ICF /P:"IBM VisualAge C++ for OS/2" /O:DRIVE
```

4. You can then leave the install program unattended while the components are deleted or installed.
5. When the install program has finished, the OS/2 command prompt appears in the OS/2 session where you ran the `install` command.
6. If you added components and chose not to have the installation program update your `CONFIG.SYS`, make the changes to it now **before** you reboot. (See “Changing Your `CONFIG.SYS`” on page 17 for details on the changes to make).
7. Shut down and restart your machine.
8. If you added the WorkFrame component, the install program requires a second phase, which is invoked from your **Startup** folder when you restart. During the second phase, the install program registers WorkFrame classes, updates any sample projects you installed, and sets up Project Smarts.

An OS/2 window with the title **WorkFrame V3 Phase 2 Install** appears after you have restarted. Messages appear in the window to inform you of the install program's actions. When the installation is complete, the window disappears.

If you want to verify that the installation completed successfully, look for `CPPINST.LOG` in your main VisualAge C++ directory. The second phase of the install program creates this file and timestamps the entries in it.

Updating Your Desktop

If you erase or change the VisualAge C++ desktop folders, you can rebuild them using the CPPDESK program. CPPDESK is in the BIN subdirectory of the main VisualAge C++ directory; if you updated CONFIG.SYS, it is also on your PATH.

1. From an OS/2 command line, enter `cppdesk`.

A window appears asking if you want to save a backup copy.



Yes is chosen by default; if you don't want to create a backup, select **No**.

2. When you've made your choice, select **Update** to continue. (Note that hitting Enter without first selecting **Update** selects the **Cancel** button.)

If you selected **No** in the previous window, a message window prompts you for confirmation. Select **OK** to continue.

Note: If you are running CPPDESK for other than the first time, you may also see a window that tells you your program is up to date, and asks if you want to continue.

Ignore this message and select **Yes** to continue.

3. After CPPDESK has completed, reboot. When you restart, the second phase of the install program runs again to complete the update.

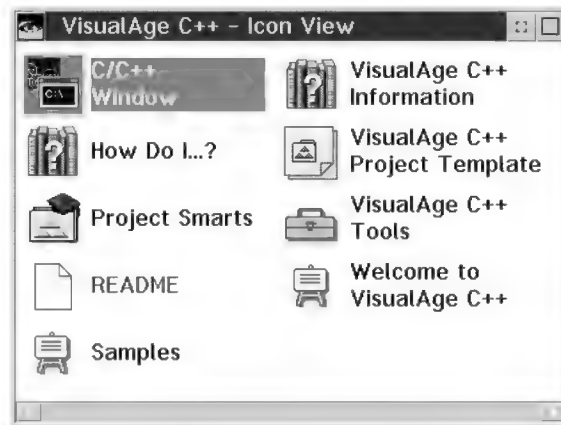


Now That You've Installed VisualAge C++

After you've successfully installed VisualAge C++, you probably want to see what you have and find out how to get started.

What Do You Have?

Assuming you installed all of VisualAge C++ or at least updated your Desktop, you should see the VisualAge C++ folder on your Desktop. When you open the folder, you see that it contains other folders and programs, as shown below.



Select this icon to open an OS/2 window with all the environment variables set for the VisualAge C++ compiler.



How Do I...?

This folder contains information about how to use VisualAge C++ and its tools, based on the tasks you need to do.



Project Smarts

This is a catalog of projects to get you started with WorkFrame. It contains skeletons for many common types of applications. Select this icon to start Project Smarts.



README

This is the README file that you read during the installation procedure. It contains information about any last-minute changes to VisualAge C++ that could not be documented elsewhere. If the README conflicts with information in other books or files, the README is most likely correct.



Samples

This folder contains sample programs that demonstrate different programming techniques using VisualAge C++. The samples are described in the *Guide to Sample Programs*, which you can access from this folder or from the Information folder.



VisualAge C++ Information

This folder contains the online information for VisualAge C++, including user's guides and reference information. For a description of the online information included, see Appendix C, "VisualAge C++ Online and Hardcopy Information" on page 47.



VisualAge C++ Project Template

You can use this template as a base for creating new WorkFrame projects.



VisualAge C++ Tools

This folder contains icons for each of the VisualAge C++ tools. You can start a tool by double-clicking on its icon, or by selecting its icon and pressing Enter,



Welcome to VisualAge C++

This is an interactive tour of VisualAge C++ that introduces the development environment and tools. It complements the *Welcome to VisualAge C++* book that comes in the VisualAge C++ package.

What Do You Do Next?

Start by reading *Welcome to VisualAge C++*. *Welcome to VisualAge C++* describes VisualAge C++ and how its different components work together. Even if you have used an earlier version of VisualAge C++, you can find helpful information in *Welcome to VisualAge C++* about new features and components.

The online *Welcome to VisualAge C++* is an interactive tour of the product that introduces the new WorkFrame development environment and the VisualAge C++ tools using a sample project and simple program example. We recommend you try this tour to familiarize yourself with using VisualAge C++.

If you have used VisualAge C++ before, make sure you read the online *What's New* to find out what has changed from previous releases, and what new features we have added.

Help for individual tasks associated with the VisualAge C++ tools is available from the **How Do I...** icon in the main VisualAge C++ folder. The Debugger, Performance Analyzer, Browser, WorkFrame, Data Access Builder, Editor, and Visual Builder all provide this task help from their **Help** menus and from their contextual help panels.

The *Visual Builder User's Guide* also contains a chapter that takes you through the development of a simple application using Visual Builder. The *Open Class Library User's Guide* provides a short Collection class tutorial and shows you how to rewrite a simple application using the User Interface classes.

You can get to all of this information from the Information folder or from the **Help** menu of each tool. For more details on VisualAge C++ information, see Appendix C, "VisualAge C++ Online and Hardcopy Information" on page 47.

You've installed the product, read the introductory material, and you're ready to go! We hope you enjoy using VisualAge C++.



If Something Goes Wrong

This section tells you what to do if you encounter a problem or an error when you run the install program. Online help is also available for error messages, both from the **Help** button on the message window, or from the index or contents of the online install help.

If You Get an Error Message

Select the **Help** button for the error for information on how to correct it. Also note the message number and the file name where the error occurred, if one is indicated. If you cannot successfully complete the installation and have to call VisualAge C++ Service and Support, this information may help identify your problem.

If the Component Requires Another Component

Many of the VisualAge C++ components require that other components be installed for them to work correctly. If you select a component to install without selecting its prerequisite, a message prompts you to select the prerequisite also.

Select the prerequisite component, as indicated by the error message. (Note that the prerequisite component may itself have prerequisites.)

If You Press Stop

If you press the **Stop** button on the Install progress window, the install program immediately stops and displays a window that asks if you want to back out of the installation. You cannot resume the install program from this point; you must end it and start again.

In the confirmation window:

- Select **Yes** to undo everything that the install program has done up to that point. We recommend you choose this option.
- Select **No** to leave the files that have already been installed. If you select **No**, you must either remove the files before you install again, or check the **Overwrite files** box the next time you run the install program.

Once the program has ended, you can restart it from the beginning.

If the Install Program Fails

If the install program fails, it displays a window that asks if you want to back out of the installation:

- Select **Yes** to undo everything that the install program has done up to that point. We recommend you choose this option.
- Select **No** to leave the files that have already been installed. If you select **No**, you must either remove the files before you install again, or check the Overwrite files box the next time you run the install program.

The most likely reason for the failure is that not enough disk space is available. To solve this problem:

- Make more room on your target drive.
- Choose a different target drive.
- Choose a shared installation (not available if you are installing from diskette) to copy only required files to your hard drive.
- Select fewer components to install.

If disk space is not a problem, run CHKDISK on your boot drive and target drive to ensure there are no file system problems.

If you are using a response file, make sure you specified responses for CFGUPDATE, DELETEBACKUP, FILE, OVERWRITE, SAVEBACKUP, and WORK, and at least one component name for COMP. If you do not give responses for these keywords, the install program may fail. Make sure that you specified the component names correctly. Also make sure that you specified the required command-line options as described in “Installing Using Response Files” on page 19.

If you try the install program again with the response file, specify the command-line options `/L1:errorlog` and `/L2:historylog` to create an error log and history log, respectively. Specify the path and file name for both. If the problem still occurs, these logs may help you determine the cause.

If you have tried all of these suggestions and the install program still fails, contact VisualAge C++ Service and Support.

If the Second Phase of Installation Fails

If the second phase of the install program fails, try running it again:

1. From an OS/2 command line, change to the main directory where you installed VisualAge C++.
2. Enter: wfphase2

This command displays the correct parameters you need to provide to the Phase 2 install program.

You also need to remove the WorkFrame Phase 2 install icon from your **Startup** folder. (This icon is removed automatically if the initial phase 2 install works correctly.) If you don't remove it, the Phase 2 install will run every time you restart your system.

If you want to verify that the installation completed successfully, look for CPPINST.LOG in your main VisualAge C++ directory. The second phase of the install program creates this file and timestamps the entries in it.

If You Can't Delete an Object because It's in Use

When you delete a component, if any objects or files are in use, they are not deleted. A message informs you when this happens. The rest of the component and its desktop objects are deleted.

After you shut down and restart your system, these objects should be deleted automatically.

If they are not, run the delete action again by changing to the IBMCPP directory (where you installed VisualAge C++), and entering epfinsts from the OS/2 command line.

If VisualAge C++ Doesn't Appear in the Installation Utility

If you start the Installation Utility and VisualAge C++ is not listed in the window, select **Current Catalog** from the **View** menu to display it.

If You've Tried Everything and It Still Doesn't Work

If the install program continues to fail after you've tried everything suggested by the error message help and this appendix, contact VisualAge C++ Service and Support.

Be sure to inform them what error messages you see, and what file names, if any, are given in those messages. If you are using response files, tell them the contents of your error and history logs.

You can contact Service and Support by:

Compuserve OS2DF1

Internet va_cpp@vnet.ibm.com

IBMLink/ServiceLink or TalkLink VA C++ forum

Telephone 1-800-237-5511 in North America
Outside of North America, contact your local IBM branch.

Important Support Information: Your free 60-day Getting Started period (GSP) of support starts with your first call to 1-800-237-5511. GSP support is available 9-5 (in your time zone), Monday through Friday. If you need support outside of these hours during the GSP, service charges apply.

For details on all the VisualAge C++ Service and Support offerings, see the card *HELP!! and how to get it*.



Response Files, Options, and Return Codes

This appendix describes all the response file parameters that you can tailor for an unattended install, the different command-line options you can use, and the values the install program returns.

Response File Format and Parameters

The response file is a flat ASCII file that consists of a number of response lines and optional comment lines. Lines can be up to 255 bytes in length, and are separated by a new-line sequence.

A comment line begins with an asterisk (*) or semi-colon (;). Response lines tell the install program how to install. Each response line has the format:

keyword = response

Keywords are not case-sensitive.

For the VisualAge C++ install program, the keywords and the responses to specify for each are:

Keyword	Response
----------------	-----------------

CFGUPDATE	
------------------	--

	AUTO to automatically update CONFIG.SYS; MANUAL to not update CONFIG.SYS. If you choose not to update CONFIG.SYS automatically, you must update it yourself before you reboot (see "Changing Your CONFIG.SYS" on page 17). You will also be prompted by the install program to confirm that this is what you want.
--	--

COMP	
-------------	--

	The name of a component to install. You must specify each component with its own COMP keyword. Note that many components require that other components be installed to work correctly. All the components are listed in UNATTEND.RSP; you can delete any you don't want.
--	--

COPY The source and target files for a copy process outside of the install program. This parameter is useful if you are using an SDM to install VisualAge C++ over a LAN, and you want to copy other files that are not part of VisualAge C++ to the workstations. The format for COPY is:

`COPY = sourcefile targetfile`

If *targetfile* already exists, it is overwritten. If either file specification is incorrect, the copy is not done.

DELETEBACKUP

YES to delete a backup version along with the product when Delete is chosen; NO to keep the backup version. This setting is only used when you delete the product. See “Adding or Deleting Components” on page 23 for details on deleting the product.

Note: If you do not specify this keyword for an unattended delete, the deletion fails.

FILE The directory where you want to install the compiler, tools, and header files.

INCLUDE The name of another response file to include. You can have up to five levels of nested response files. If you don't specify the fully-qualified file name, the install program looks for the response file using the following search order:

1. The current directory.
2. The path specified by the /G command-line option, if any.
3. Directories specified by the PATH environment variable.
4. Directories specified by the DPATH environment variable.

If the file name specified contains a wildcard character (* or ?), the first matching file is used.

OVERWRITE

YES to overwrite files on the target install drive; NO if you do not want to overwrite files. Note that if you specify NO and files exist on that drive with the same name as VisualAge C++ files, the install program will not continue.

SAVEBACKUP

YES to save a backup copy; NO to not save a backup. This setting is only used when you install corrective service (CSDs) for VisualAge C++.

USEREXIT The name of a program that you want the install program to call. This is useful if you are installing VisualAge C++ using an SDM, and want to perform additional tasks. If you don't specify the fully-qualified file name, the install program looks for the program file using the following search order:

1. The current directory.
2. Directories specified by the PATH environment variable.
3. Directories specified by the DPATH environment variable.

If the file name specified contains a wildcard character (* or ?), the first matching file is used.

WORK The directory where you want to install the samples and online information.

You must specify responses for the CFGUPDATE, DELETEBACKUP, FILE, OVERWRITE, SAVEBACKUP, and WORK keywords, and specify at least one component for the COMP keyword, for the install program to work correctly.

Command-Line Options

You can specify a number of command-line options for the `install` command. If you run `install` or `shrdinst` interactively, you don't have to specify any options. If you run `install` with a response file, you must specify:

/A
/C
/O
/P
/R
/X

All other options are optional.

The command-line options are:

/A:action

Specifies the action to perform. *action* can be any of:

- D** Delete.
- I** Install.
- R** Restore.
- U** Update. (Note that you should only use this action when you are installing corrective service (CSDs) to VisualAge C++.)

/C:d:\dir\VACPP.ICF

Specifies the catalog file that contains the information about the VisualAge C++ files. You must specify the drive and directory, which are the same as the install program.

/G:includepath

Specifies the path the install program should use to locate response files.

/L1:d:\dir\errorlog

Specifies the error log file. The install program logs any errors to this file and prefixes them with a timestamp. If you don't specify the path and file name, EPFINSTS.OUT is created in the temporary install directory (usually on the drive with the most available space). If you don't specify this option, messages are not logged.

/L2:d:\dir\historylog

Specifies the history log file. The install program logs the install events in this file and prefixes them with a timestamp. If you don't specify a path and file name, the history log is created in the temporary install directory (usually on the drive with the most available space). If you don't specify this option, the history are not logged.

/O:DRIVE

Specifies that the install program originates from the OS/2 operating system.

/P:"IBM VisualAge C++ for OS/2"

Specifies the name of the product to install.

/R:d:\dir\responsefile

Specifies the response file to use. If you don't specify the fully-qualified file name, the install program looks for the response file using the following search order:

1. The current directory.
2. The path specified by /G, if any.
3. Directories specified by the PATH environment variable.
4. Directories specified by the DPATH environment variable.

/S:d:\sourcedir

Specifies the directory where the source files reside.

/T:d:\targetdir

Specifies the directory where the files should be installed. If you use this option, it overrides what is specified for FILE in the response file.

/TU:d:\dir\CONFIG.SYS

Specifies the CONFIG.SYS file to be updated.

/X Specifies that the install program runs unattended, using a response file.

Return Codes

The install program returns a 2-byte hexadecimal value to the SDM, indicating success or failure, what steps should be taken next, and what type of messages, if any, were logged:

- Successful installation. No other action required.
00 00 No messages were logged.
- Successful installation. Restart the workstation operating system. Do not call the install program again.
FE 00 No messages were logged.
FE 04 Warning messages were logged.
FE 08 Error messages were logged.
FE 12 Severe error messages were logged.
- Successful installation. Restart the workstation operating system and call the install program again.
FF xx *xx can be any value from 00 to FF.*
- Installation did not complete successfully; an expected condition was encountered.
16 00 The install program was invoked incorrectly.
16 04 Messages were logged.

If you created user exits for the install program to call (as specified by the USEREXIT keyword in the response file), your user exit must return a 2-byte hexadecimal value to the install program as follows:

- 00 00** Your program completed successfully.
- FE 00** Your program completed successfully, and requires the workstation operating system to be restarted without calling the install program again. When you return this value, the install program displays a message to restart the operating system.
- FF xx** Your program completed successfully, and requires the workstation operating system to be restarted and the install program to be called again. When you return this value, the install program displays a message to restart the operating system and to try the action again.

If your program is in REXX, you can use the REXX EXIT command and return the value in decimal instead of hexadecimal.

If your program returns a different value to the install program, the install program displays a message that a product-specific error occurred, indicating the name of your program and the return code.



VisualAge C++ Online and Hardcopy Information

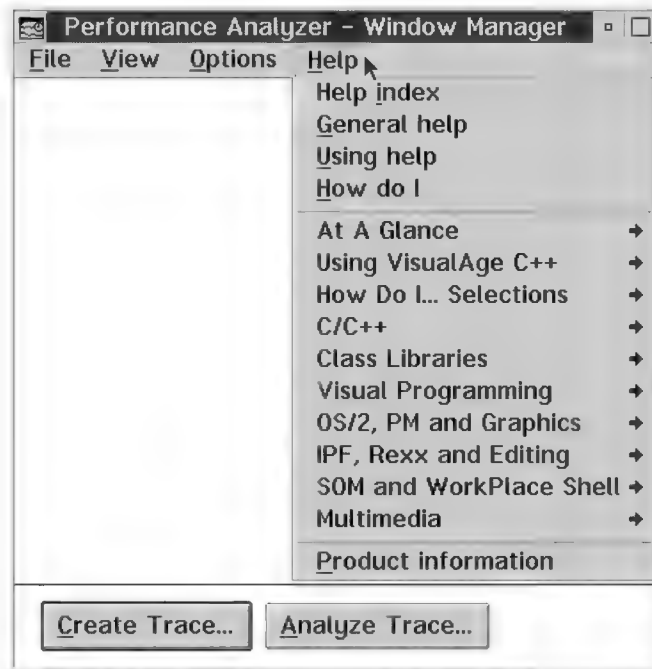
If you look in the VisualAge C++ Information folder, you'll see many icons. This appendix describes the books associated with those icons, as well as the hardcopy books that come with VisualAge C++.

Online Information

You can access the online information in several ways:

- From the Information folder (found inside the VisualAge C++ folder) on the Desktop, or for task help, from the How Do I folder.
- From the **Help** menu in any tool.
- From the Editor, Browser, Debugger, Performance Analyzer, Data Access Builder, or Visual Builder interface, by putting your cursor on a keyword and pressing F1 (for the Editor) or Ctrl-H (for the others).
- From the command line, using `view` and the file name.
- From KwikINF, by double-clicking on the KwikINF icon in the Tools folder, then putting your cursor on a keyword and pressing Ctrl-K.

In the **Help** menu, in addition to the usual help topics, we've added a **How do I** choice for the tool you're currently using, as well as entries for all of the online books. We've divided the online information into different categories to make it easier to find what you need.



Select the arrow next to the menu choice to see the books in that category. (They are also listed on the following pages.)

- **At A Glance** provides general information about VisualAge C++.
- **Using VisualAge C++** provides information about how to use the VisualAge C++ tools.
- **How Do I... Selections** provides step-by-step instructions on how to perform different tasks.
- **C/C++** provides details on C and C++ programming techniques, as well as language constructs and library functions.
- **Class Libraries** describes the IBM Open Class Library.
- **Visual Programming** describes how to use Visual Builder to create applications.
- **OS/2, PM and Graphics** describes OS/2 programming techniques.
- **IPF, REXX and Editing** provides information on using the Editor, REXX programming, and creating online information.
- **SOM and WorkPlace Shell** describes how to create SOM and WPS applications.
- **Multimedia** describes how to create multimedia applications.

If you prefer books to online information, you can order most of this information in hardcopy format through the same channels you ordered the VisualAge C++ product.

The following sections list the online information in each category. They also indicate information that is available online only.

At A Glance

What's New (online only)

Describes what has been changed or added to VisualAge C++ for this release.

Welcome to VisualAge C++

Introduces you to developing applications with VisualAge C++. Use this tutorial along with the hardcopy *Welcome to VisualAge C++* to familiarize yourself with VisualAge C++.

Guide to Sample Programs (online only)

Describes the sample programs shipped with VisualAge C++. You can access this information from the Samples folder as well as from the Information folder.

Frequently-Asked Questions (online only)

Provides answers to the questions that our users ask most often.

Using VisualAge C++

Overall User's Guide

Tells you how to use the VisualAge C++ tools, including the WorkFrame, editor, compiler, linker, debugger, browser, Performance Analyzer, and utilities. It also describes the options and commands for these tools.

Each choice in the **Using VisualAge C++** menu takes you to the appropriate section in the *User's Guide*. For example, selecting **Browsing** opens the *User's Guide* to the section on using the Browser.

How Do I... Selections

Each choice in the menu takes you to step-by-step instructions for performing tasks with that tool. For example, selecting **Debugger** takes you to the task help for the debugger. Selecting **Overall** opens the help for general VisualAge C++ tasks that involve more than one tool.

To see step-by-step instructions for the tool you are currently using, select **How do I** from the first grouping of topics in the **Help** menu.

The desktop icons for the How Do I help are in the **How Do I** folder.

C/C++

Programming Guide

Describes different C and C++ programming techniques, such as building DLLs and using templates.

C Library Reference

Describes the C library functions.

Language Reference

Describes the language elements of both C and C++.

Class Libraries

Open Class Library User's Guide

Tells you how to use the class libraries that comprise IBM Open Class in your C++ programs.

Open Class Library Reference

Describes the class libraries that comprise IBM Open Class.

Visual Programming

Visual Builder User's Guide

Describes how to use Visual Builder to create your applications graphically, without writing code.

Visual Builder Parts Reference

Describes the reusable parts for Visual Builder (Parts are like classes).

Building VisualAge C++ Parts for Fun and Profit

Tells you how to create your own libraries of parts for others to use.

OS/2, PM and Graphics

Control Program Guide and Reference

Describes the OS/2 Dos* APIs and how to use them.

OS/2 Bidirectional Language Support Development Guide

Describes the OS/2 support for bidirectional languages, such as Arabic.

Kernel Debug Reference

Tells you how to use the OS/2 kernel debugger.

Presentation Manager Guide and Reference

Describes the OS/2 PM APIs and how to use them.

Graphics Programming Guide and Reference

Describes the OS/2 graphics (Gpi*) APIs and how to use them.

IPF, REXX and Editing

IPF Guide and Reference

Tells you how to create online information using the IPF help facility.

REXX Reference

Describes the REXX interface language.

Editor Command Reference

Describes how to customize and program the VisualAge C++ editor.

SOM and Workplace Shell

SOM Programming Guide

Describes the System Object Model (SOM) and how to use it.

SOM Programming Reference

Provides details about the SOM interfaces.

Workplace Shell Programming Guide

Describes how to create Workplace Shell applications.

Workplace Shell Programming Reference

Provides details on the Workplace objects, classes, methods, and data types.

Multimedia

Multimedia Application Programming Guide

Describes how to use multimedia APIs to create OS/2 multimedia applications.

Multimedia Subsystem Programming Guide

Describes how to create multimedia subsystems.

Multimedia Programming Reference

Provides details about the multimedia functions, commands, and messages.

Hardcopy Information

All VisualAge C++ packages contain this book (*Read Me First!*) and:

Welcome to VisualAge C++

Introduces the VisualAge C++ concepts, components, and features, and provides an overview of developing applications using VisualAge C++.

License Information

Details the license agreement.

HELP!! and how to get it

Tells you what to do if you have a problem with VisualAge C++.

If you have the CD-ROM-only version of VisualAge C++, these are the only hardcopy books you have. All other information is online only, in .INF, BookManager, and PostScript format.

The VisualAge C++ diskette version and CD-ROM Pak both include the following additional hardcopy information:

Programming Guide

Describes different C and C++ programming techniques for both novice and experienced users.

User's Guide

Tells you how to use the WorkFrame, editor, compiler, linker, debugger, browser, Performance Analyzer, and utilities.

Visual Builder User's Guide

Describes how to use Visual Builder to create your applications graphically, without writing code.

Open Class Library User's Guide

Tells you how to use the IBM Open Class libraries in your C++ programs, including the Collection, Database Access, and User Interface classes.

If you prefer books to online information, you can order most of the information in hardcopy format through the same channels you ordered the VisualAge C++ product. The hardcopy information comes in the following three packages:

Library Group 1, 30H1679

- *User's Guide*
- *Programming Guide*
- *Open Class Library User's Guide*
- *Visual Builder User's Guide*

Library Group 2, 30H1680

- *Language Reference*
- *C Library Reference*
- *Open Class Library Reference: Volume 1*
- *Open Class Library Reference: Volume 2*
- *Open Class Library Reference: Volume 3*
- *Visual Builder Parts Reference*
- *Building VisualAge C++ Parts for Fun and Profit*

Technical Library, BOF8511

- *Control Program Programming Guide*
- *Control Program Programming Reference*
- *Presentation Manager Programming Guide - The Basics*
- *Presentation Manager Programming Guide - Advanced Topics*
- *Presentation Manager Programming Reference*
- *Graphics Programming Interface Programming Guide*
- *Graphics Programming Interface Programming Reference*
- *Workplace Shell Programming Guide*
- *Workplace Shell Programming Reference*
- *Information Presentation Facility Programming Guide*
- *OS/2 Tools Reference*
- *Multimedia Application Programming Guide*
- *Multimedia Subsystem Programming Guide*
- *Multimedia Programming Reference*
- *REXX User's Guide*
- *REXX Reference*

If you have VisualAge C++ on CD-ROM, you can also print the PostScript files for the books, as described in "PostScript Files."

BookManager Books

If you have VisualAge C++ on CD-ROM, the online information is also available in BookManager READ format in the BOOKS directory. You can read this information using either the IBM Library Reader/2 or IBM Library Reader/DOS, both of which you will find in the EZ2INST directory. (If you have a copy of the IBM BookManager product for any platform, you can use it to read this information.)

For details on installing and using the IBM Library Reader and BookManager books, see the README.ENG file in the root directory of the CD-ROM.

PostScript Files

If you have VisualAge C++ on CD-ROM, PostScript** files are available for all information that can be ordered in hardcopy. The files are located in the PS directory. You can print these files on any PostScript printer.

To print the files, use the OS/2 print command, or drag the file icon and drop it on your printer icon.

Communicating Your Comments to IBM

IBM VisualAge C++ for OS/2

Read Me First!

Version 3.0

Publication No. S25H-6956-00

If there is something you like—or dislike—about this book, please let us know. You can use one of the methods listed below to send your comments to IBM. If you want a reply, include your name, address, and telephone number. If you are communicating electronically, include the book title, publication number, page number, or topic you are commenting on.

The comments you send should only pertain to the information in this book and its presentation. To request additional publications or to ask questions or make comments about the functions of IBM products or systems, you should talk to your IBM representative or to your IBM authorized remarketer.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

If you are mailing a readers' comment form (RCF) from a country other than the United States, you can give it to the local IBM branch office or IBM representative for postage-paid mailing.

- If you prefer to send comments by mail, use the RCF at the back of this book.
- If you prefer to send comments by FAX, use this number:
 - United States and Canada: 416-448-6161
 - Other countries: (+1)-416-448-6161
- If you prefer to send comments electronically, use the network ID listed below. Be sure to include your entire network address if you wish a reply.
 - Internet: torrcf@vnet.ibm.com
 - IBMLink: toribm(torrcf)
 - IBM/PROFS: torolab4(torrcf)
 - IBMMAIL: ibmmail(caibmwt9)

Readers' Comments — We'd Like to Hear from You

IBM VisualAge C++ for OS/2
Read Me First!
Version 3.0

Publication No. S25H-6956-00

Overall, how satisfied are you with the information in this book?

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	☐	☐	☐	☐	☐

How satisfied are you that the information in this book is:

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Accurate	☐	☐	☐	☐	☐
Complete	☐	☐	☐	☐	☐
Easy to find	☐	☐	☐	☐	☐
Easy to understand	☐	☐	☐	☐	☐
Well organized	☐	☐	☐	☐	☐
Applicable to your tasks	☐	☐	☐	☐	☐

Please tell us how we can improve this book:

Thank you for your responses. May we contact you? ☐ Yes ☐ No

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

Name

Address

Company or Organization

Phone No.

Readers' Comments — We'd Like to Hear from You
S25H-6956-00



Cut or Fold
Along Line

Fold and Tape

Please do not staple

Fold and Tape

PLACE
POSTAGE
STAMP
HERE

IBM Canada Ltd. Laboratory
Information Development
2G/345/1150/TOR
1150 EGLINTON AVENUE EAST
NORTH YORK ONTARIO CANADA M3C 1H7

Fold and Tape

Please do not staple

Fold and Tape

S25H-6956-00

Cut or Fold
Along Line



Part Number: 25H6956
Program Number: 30H1664
30H1665
30H1666

Printed in U.S.A.

S25H-6956-00



25H6956

